

Substitute



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INTRUSION DETECTION SYSTEM INCLUDING OVER-UNDER
PASSIVE INFRARED OPTICS AND A MICROWAVE TRANSCEIVER

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BACKGROUND OF THE INVENTION

1. Field of the Invention.

[0001] The present invention relates to surveillance systems, and, more particularly, to surveillance systems for detecting an intruder in a monitored area of space.

2. Description of the Related Art.

[0002] Surveillance systems for detecting intrusions of a moving object, such as a human, into a monitored area of space are known. The motion detectors often include infrared detectors that sense the presence of a source of infrared radiation, e.g., a warm body, anywhere along the line of sight of the infrared sensors.

[0003] A problem with infrared detectors is that they cannot easily distinguish between a human intruder and a house pet, such as a dog or a cat. It is particularly difficult for an infrared detector to distinguish between a pet at close range to the detector and a human located further away from the detector. An undesirable consequence of this problem is that an infrared detector may falsely set off an alarm in response to detecting a pet.

[0004] The detectors may also include microwave-based Doppler detectors that sense movement of objects by transmitting microwave energy and receiving the microwave energy after it has been reflected off of the objects. One problem with microwave-based Doppler detectors is that, similarly to infrared detectors, they sometimes cannot easily distinguish between a human intruder and a house pet. A small object close to the detector may produce the same signals as a larger object that is farther away from the detector. Thus, a dog that is fifteen feet from the detector may produce a signal similar to that of a human who is thirty feet from the detector. Like infrared detectors, microwave-based Doppler detectors may falsely set off an alarm in response to detecting a pet.